

*Ephemeris for Physical Observations*

Greenwich Noon.	Angle of Position of $\varpi$ 's Axis.	Latitude of Earth   Sun above $\varpi$ 's Equator.		$\Lambda - L.$	O - L.	Longitude of $\varpi$ 's Central Meridian.	Cor. for Phase.
1883.	°	°	°	°	°	°	°
Sept. 16	13°340	+1°115	+1°346	-9°066	16°876	184°70	+0°36
21	13°662	1°079	1°326	9°482	16°048	216°29	'39
26	13°963	1°044	1°306	9°853	15°265	247°95	'42
Oct. 1	14°243	1°010	1°285	10°176	14°531	279°67	'45
6	14°501	+0°977	+1°265	-10°448	13°849	311°45	+0°47
11	14°736	'945	1°245	10°664	13°223	343°30	'49
16	14°947	'915	1°225	10°821	12°655	15°21	'51
21	15°133	'886	1°205	10°915	12°150	47°19	'52
26	15°294	'858	1°185	10°943	11°713	79°24	'52
31	15°428	'832	1°164	10°900	11°347	111°36	'52
Nov. 5	15°535	+0°808	+1°144	-10°783	11°054	143°56	+0°51
10	15°614	'786	1°124	10°590	10°838	175°83	'49
15	15°664	'767	1°103	10°317	10°702	208°17	'46
20	15°685	'750	1°083	9°963	10°647	240°58	'43
25	15°677	'735	1°063	9°527	10°675	273°05	'39
30	15°639	'722	1°042	9°008	10°786	305°59	'35
Dec. 5	15°571	+0°712	+1°021	-8°408	10°979	338°20	+0°31
10	15°475	'705	1°001	7°728	11°251	10°87	'26
15	15°351	'700	0°980	6°973	11°599	43°58	'21
20	15°200	'698	'959	6°146	12°019	76°33	'16
25	15°023	'698	'939	5°254	12°505	109°12	'12
30	14°824	'700	'918	4°304	13°049	141°93	'08
1884.							
Jan. 4	14°605	+0°704	+0°897	-3°307	13°640	174°76	+0°05
9	14°370	'710	'876	2°273	14°268	207°59	'02
14	14°124	'718	'856	1°214	14°922	240°40	+ '01
19	13°870	'727	'835	-0°140	15°591	273°19	'00
24	13°612	'736	'814	+0°935	16°262	305°94	'00
29	13°356	'747	'793	1°993	16°921	338°64	- '02

June 1883.

*Observations of Jupiter.*

451

*of Jupiter, 1883-84. By A. Marth.*

Greenwich Noon.	Diameter Equat.   Polar.		Difference of limbs in A. R.   in Decl.		Defect of illumination. Equat.   in A. R. preced. limb.		d	w
1883.	"	"	s	"	s	"	°	°
Sept. 16	34'14	31'97	2'425	32'09	0'21	0'015	9'07	268'34
21	34'53	32'33	2'450	32'46	'24	'016	9'49	268'30
26	34'95	32'72	2'477	32'85	'26	'018	9'86	268'27
Oct. 1	35'39	33'14	2'506	33'28	'28	'019	10 18	268'24
6	35'86	33'58	2'536	33'72	0'30	0'020	10'45	268'21
11	36'36	34'04	2'568	34'19	'31	'021	10'66	268 18
16	36'88	34'53	2'603	34'69	'33	'022	10'82	268'14
21	37'42	35'04	2'640	35'20	'34	'023	10'92	268'11
26	37'98	35'56	2'678	35'74	'35	'023	10'95	268'07
31	38'56	36'11	2'717	36'29	'35	'023	10'91	268'04
Nov. 5	39'16	36'67	2'758	36'85	0'35	0'023	10'79	268'00
10	39'77	37'23	2'800	37'42	'34	'023	10'59	267'96
15	40'38	37'81	2'843	38'00	'33	'022	10'32	267'92
20	40'99	38'38	2'886	38'58	'31	'021	9'97	267'87
25	41'60	38'95	2'929	39'15	'29	'019	9'53	267'82
30	42'20	39'51	2'972	39'71	'26	'017	9'01	267'76
Dec. 5	42'78	40'05	3'014	40'25	0'23	0'015	8'41	267'69
10	43'33	40'57	3'055	40'77	'20	'013	7'73	267'61
15	43'84	41'05	3'093	41'25	'16	'011	6'98	267'50
20	44'30	41'48	3'128	41'68	'13	'009	6'15	267'35
25	44'71	41'87	3'160	42'06	'09	'006	5'26	267'15
30	45'06	42'20	3'188	42'39	'06	'004	4'31	266'9
1884.								
Jan. 4	45'34	42'46	3'211	42'65	0'04	0'003	3'31	266'4
9	45'55	42'65	3'229	42'83	'02	'001	2'28	265'2
14	45'68	42'76	3'241	42'94	'01	'000	1'22	263'1
19	45'71	42'80	3'248	42'97	following limb		0'18	230'5
24	45'66	42'76	3'248	42'92	'00	'000	0'94	95'1
29	45'53	42'64	3'242	42'79	'01	'001	2'00	91'2

Greenwich Noon.	Angle of Position of M's Axis.	Latitude of Earth   Sun above M's Equator.		A-L	O-L	Longitude of M's Central Meridian.	Cor. for Phase.
1884.	°	°	°	°	°	°	°
Feb. 3	13°108	+0°758	+0°772	+3°037	17°556	11°27	-0°04
8	12°872	°768	°751	4°041	18°156	43°83	°08
13	12°652	°778	°730	4°999	18°710	76°31	°11
18	12°452	°788	°709	5°902	19°208	108°70	°15
23	12°277	°797	°688	6°742	19°643	141°00	°20
28	12°129	°804	°667	7°512	20°011	173°20	°25
Mar. 4	12°010	+0°810	+0°646	+8°208	20°306	205°29	-0°29
9	11°922	°815	°625	8°825	20°521	237°29	°34
14	11°867	°818	°604	9°362	20°656	269°18	°38
19	11°845	°819	°583	9°818	20°711	300°98	°42
24	11°855	°819	°561	10°194	20°685	332°68	°45
29	11°898	°817	°540	10°490	20°580	4°29	°48
Apr. 3	11°973	+0°812	+0°519	+10°707	20°397	35°81	-0°50
8	12°078	°805	°498	10°849	20°137	67°25	°51
13	12°212	°797	°477	10°918	19°803	98°62	°52
18	12°374	°787	°455	10°918	19°404	129°92	°52
23	12°561	°774	°434	10°852	18°941	161°15	°51
28	12°772	°759	°413	10°723	18°412	192°32	°50
May 3	13°006	+0°743	+0°392	+10°534	17°824	223°45	-0°48
8	13°259	°725	°370	10°291	17°182	254°53	°46
13	13°530	°704	°349	9°996	16°488	285°56	°43
18	13°816	°682	°328	9°653	15°746	316°56	°40
23	14°117	°658	°307	9°265	14°960	347°52	°37
28	14°430	°632	°285	8°836	14°133	18°46	°34
June 2	14°754	+0°605	+0°264	+8°369	13°268	49°38	-0°31
7	15°087	°576	°243	7°868	12°368	80°28	°27
12	15°426	°545	°222	7°335	11°438	111°17	°23

June 1883.

*Observations of Jupiter.*

453

Greenwich Noon.	Diameter		Difference of limbs		Defect of illumination.		i	w
	Equat.	Polar.	in A.R.	in Decl.	Equat.   in A.R. following limb.			
1884.	"	"	s	"	"	s	o	"
Feb. 3	45°32	42°44	3°23I	42°59	0°03	0°002	3°04	90°3
8	45°04	42°17	3°214	42°32	°05	°004	4°04	89°8
13	44°68	41°83	3°19I	41°98	°08	°006	5°00	89°44
18	44°26	41°44	3°163	41°58	°12	°008	5°90	89°22
23	43°79	41°00	3°132	41°13	°15	°010	6°74	89°06
28	43°27	40°51	3°096	40°64	°19	°013	7°51	88°93
Mar. 4	42°71	39°99	3°058	40°11	0°22	0°015	8°21	88°83
9	42°12	39°44	3°017	39°56	°25	°017	8°83	88°75
14	41°52	38°87	2°974	38°99	°28	°019	9°36	88°67
19	40°90	38°29	2°930	38°41	°30	°021	9°82	88°59
24	40°27	37°71	2°885	37°82	°32	°022	10°20	88°52
29	39°65	37°12	2°839	37°23	°33	°023	10°49	88°46
Apr. 3	39°03	36°54	2°794	36°65	0°34	0°024	10°71	88°40
8	38°42	35°97	2°750	36°08	°34	0°24	10°85	88°34
13	37°82	35°42	2°706	35°53	°34	°024	10°92	88°28
18	37°25	34°88	2°663	34°99	°34	°023	10°92	88°21
23	36°69	34°35	2°621	34°47	°33	°023	10°86	88°15
28	36°15	33°85	2°581	33°97	°32	°022	10°73	88°09
May 3	35°64	33°37	2°542	33°49	0°30	0°021	10°54	88°02
8	35°15	32°91	2°505	33°03	°28	°020	10°30	87°95
13	34°69	32°48	2°469	32°60	°26	°018	10°00	87°88
18	34°25	32°07	2°435	32°20	°24	°017	9°66	87°81
23	33°84	31°69	2°403	31°82	°22	°015	9°27	87°73
28	33°46	31°33	2°372	31°46	°20	°014	8°84	87°64
June 2	33°10	30°99	2°344	31°13	0°18	0°012	8°38	87°55
7	32°77	30°68	2°318	30°83	°15	°011	7°88	87°44
12	32°47	30°40	2°292	30°55	°13	°009	7°34	87°33

The angle  $\Lambda - L$  is the difference of the Jovicentric longitudes of the Sun and the Earth, reckoned in the plane of *Jupiter's* equator,  $O - L$  the difference of longitudes of *Jupiter's* vernal equinoctial point  $O$  and of the point of his equator which is in opposition to the Earth, or  $L + 180^\circ - O$  is the Jovicentric longitude of the Earth reckoned from  $O$ .

The assumed daily rate of rotation, on which the "Longitude of  $\mathcal{U}$ 's Central Meridian" depends, is the same as has been adopted in the ephemerides of the last two apparitions—namely,  $870^\circ.42$ , the corresponding period being  $9^h 55^m 34^s.47$ . Even if it should be found that, since last seen, the great reddish spot has entirely faded away, its place ought to be watched specially, and for the purpose it seems desirable not to make any alteration for the present. In the column "Longitude of  $\mathcal{U}$ 's Central Meridian" the successive values differ, for an interval of five days, by twelve rotations and some thirty degrees, so that, for instance, the first difference is  $4351^\circ.59$  and the last  $4350^\circ.89$ , which must be borne in mind in interpolating. If the "Corr. for Phase" is added to the "Longitude of  $\mathcal{U}$ 's Central Meridian," or of the meridian directed to the Earth, the longitude of the meridian is found which bisects the illuminated disk of the planet.

The assumed value of *Jupiter's* equatorial diameter is  $37''.60$  at the distance  $5.20273$ . The assumed proportion of the polar axis to the equatorial diameter is  $0.9363$ . The defect of illumination of the apparent polar diameter is insensible, that of the difference of limbs in declination is  $0''.02$  from October 6 to November 30 and  $0''.01$  for the other dates, except from December 25 to February 13, when it is insensible. The last columns give the values of the auxiliary angles  $d$  and  $w$  required in the computations for defect of illumination, as explained in vol. xl. p. 490 ff.

The following is a list of the Greenwich mean times, when the assumed First Meridian of *Jupiter* passes the middle of the illuminated disk:—

1883.	h	m	1883.	h	m	1883.	h	m	1883.	h	m
Sept. 15	18	53.8	Sept. 20	18	1.5	Sept. 25	17	9.1	Sept. 30	16	16.5
16	4	49.4	21	3	57.1	26	3	4.7	Oct. 1	2	12.2
14	45.1		13	52.8		13	0.3		12	7.8	
17	0	40.7	23	48.4		22	55.9		22	3.4	
10	36.4		22	9	44.0	27	8	51.6	2	7	59.0
20	32.0		19	39.7		18	47.2		17	54.6	
18	6	27.7	23	5	35.3	28	4	42.8	3	3	50.3
16	23.3		15	30.9		14	38.4		13	45.9	
19	2	18.9	24	1	26.5	29	0	34.1	23	41.5	
12	14.6		11	22.2		10	29.7		4	9	37.1
22	10.2		21	17.8		20	25.3		19	32.7	
20	8	5.9	25	7	13.4	30	6	20.9	5	5	28.3

June 1883.

*Observations of Jupiter.*

455

1883.	h	m	1883.	h	m	1883.	h	m	1883.	h	m
Oct. 5	15	23.9	Oct. 22	4	27.8	Nov. 7	17	30.5	Nov. 24	6	32.1
6	1	19.5	14	23.4	8	3	26.1	16	27.7		
11	15.2		23	0	19.0	13	21.7	25	2	23.2	
21	10.8		10	14.6	23	17.2		12	18.7		
7	7	6.4	20	10.2	9	9	12.6	22	14.2		
17	2.0		24	6	5.7	19	8.3	26	8	9.8	
8	2	57.6	16	1.3	10	5	3.9	18	5.3		
12	53.2		25	1	56.9	14	59.4	27	4	0.8	
22	48.8		11	52.5	11	0	55.0	13	56.3		
9	8	44.4	21	48.0	10	50.5		23	51.8		
18	40.0		26	7	43.6	20	46.1	28	9	47.4	
10	4	35.6	17	39.2	12	6	41.6	19	42.9		
14	31.2		27	3	34.8	16	37.2	29	5	38.4	
11	0	26.8	13	30.3	13	2	32.7	15	33.9		
10	22.4		23	25.9	12	28.2		30	1	29.4	
20	18.0		28	9	21.5	22	23.8	11	24.9		
12	6	13.6	19	17.1	14	8	19.3	21	20.4		
16	9.2		29	5	12.6	18	14.9	Dec. 1	7	16.0	
13	2	4.8	15	8.2	15	4	10.4	17	11.5		
12	0.4		30	1	3.8	14	6.0	2	3	7.0	
21	56.0		10	59.3	16	0	1.5	13	2.5		
14	7	51.6	20	54.9	9	57.0		22	58.0		
17	47.2		31	6	50.5	19	52.6	3	8	53.5	
15	3	42.8	16	46.0	17	5	48.1	18	49.0		
13	38.4		Nov. 1	2	41.6	15	43.6	4	4	44.5	
23	34.0		12	37.2	18	1	39.2	14	40.0		
16	9	29.6	22	32.7	11	34.7		5	0	35.5	
19	25.2		2	8	28.3	21	30.2	10	31.0		
17	5	20.8	18	23.9	19	7	25.8	20	26.6		
15	16.4		3	4	19.4	17	21.3	6	6	22.1	
18	1	11.9	14	15.0	20	3	16.8	16	17.6		
11	7.5		4	0	10.5	13	12.4	7	2	13.1	
21	3.1		10	6.1	23	7.9		12	8.6		
19	6	58.7	20	1.7	21	9	3.4	22	4.1		
16	54.3		5	5	57.2	18	59.0	8	7	59.6	
20	2	49.9	15	52.8	22	4	54.5	17	55.1		
12	45.5		6	1	48.3	14	50.0	9	3	50.6	
22	41.1		11	43.9	23	0	45.6	13	46.1		
21	8	36.7	21	39.4	10	41.1		23	41.6		
18	32.2		7	7	35.0	20	36.6	10	9	37.1	

1883.	h	m	1883.	h	m	1884.	h	m	1884.	h	m
Dec. 10	19	32.6	Dec. 27	8	32.2	Jan. 12	11	35.9	Jan. 29	0	35.4
11	5	28.1	18	27.7	21	31.4	10	30.9			
15	23.6	28	4	23.2	13	7	26.9	20	26.4		
12	1	19.1	14	18.6	17	22.3	30	6	21.9		
11	14.6	29	0	14.1	14	3	17.8	16	17.4		
21	10.1	10	9.6	13	13.3	31	2	12.9			
13	7	5.6	20	5.1	23	8.8	12	8.4			
17	1.1	30	6	0.6	15	9	4.3	22	3.9		
14	2	56.6	15	56.0	18	59.7	Feb. 1	7	59.4		
12	52.1	31	1	51.5	16	4	55.2	17	54.9		
22	47.6	11	47.0	14	50.7	2	3	50.4			
15	8	43.1	21	42.5	17	0	46.2	13	45.9		
18	38.5	1884.			10	41.7	23	41.4			
16	4	34.0	Jan. 1	7	38.0	20	37.1	3	9	36.9	
14	29.5	17	33.4	18	6	32.6	19	32.4			
17	0	25.0	2	3	28.9	16	28.1	4	5	28.0	
10	20.5	13	24.4	19	2	23.6	15	23.5			
20	16.0	23	19.9	12	19.1	5	1	19.0			
18	6	11.5	3	9	15.4	22	14.6	11	14.5		
16	7.0	19	10.8	20	8	10.0	21	10.0			
19	2	2.5	4	5	6.3	18	5.5	6	7	5.5	
12	58.0	15	1.8	21	4	1.0	17	1.1			
21	53.5	5	0	57.3	13	56.5	7	2	56.6		
20	7	49.0	10	52.8	23	52.0	12	52.1			
17	44.4	20	48.2	22	9	47.5	22	47.6			
21	3	39.9	6	6	43.7	19	43.0	8	8	13.1	
13	35.4	16	39.2	23	5	38.4	18	38.7			
23	30.9	7	2	34.7	15	33.9	9	4	34.2		
22	9	26.4	12	30.2	24	1	29.4	14	29.7		
19	21.9	22	25.6	11	24.9	10	0	25.2			
23	5	17.4	8	8	21.1	21	20.4	10	20.8		
15	12.8	18	16.6	25	7	15.9	20	16.3			
24	1	8.3	9	4	12.1	17	11.4	11	6	11.8	
11	3.8	14	7.5	26	3	6.9	16	7.3			
20	59.3	10	0	3.0	13	2.4	12	2	2.9		
25	6	54.8	9	58.5	22	57.9	11	58.4			
16	50.3	19	54.0	27	8	53.4	21	53.9			
26	2	45.7	11	5	49.5	18	48.9	13	7	49.5	
12	41.2	15	44.9	28	4	44.4	17	45.0			
22	36.7	12	1	40.4	14	39.9	14	3	40.5		

June 1883.

*Observations of Jupiter.*

457

1884.	h	m	1884.	h	m	1884.	h	m	1884.	h	m	
Feb. 14	13	36.1	Mar. 2	2	38.5	Mar. 18	15	42.7	Apr. 4	4	48.6	
	23	31.6		12	34.1		19	1	38.3		14	44.2
15	9	27.2		22	29.7		11	34.0		5	0	39.9
	19	22.7	3	8	25.3		21	29.4		10	35.6	
16	5	18.2		18	20.8		20	7	25.2		20	31.2
	15	13.8	4	4	16.4		17	20.9		6	6	26.9
17	1	9.3		14	12.0		21	3	16.5		16	22.6
	11	4.9	5	0	7.6		13	12.1		7	2	18.2
	21	0.4		10	3.2		23	7.8		12	13.9	
18	6	56.0		19	58.8		22	9	3.4		22	9.6
	16	51.5	6	5	54.4		18	59.0		8	8	5.2
19	2	47.1		15	50.0		23	4	54.7		18	0.9
	12	42.6	7	1	45.6		14	50.3		9	3	56.6
	22	38.2		11	41.2		24	0	45.9		13	52.3
20	8	33.7		21	36.8		10	41.6		23	47.9	
	18	29.3	8	7	32.4		20	37.2		10	9	43.6
21	4	24.8		17	28.0		25	6	32.9		19	39.3
	14	20.4	9	3	23.6		16	28.5		11	5	35.0
22	0	16.0		13	19.2		26	2	24.2		15	30.6
	10	11.5		23	14.8		12	19.8		12	1	26.3
	20	7.1	10	9	10.4		22	15.4		11	22.0	
23	6	2.6		19	6.0		27	8	11.1		21	17.7
	15	58.2	11	5	1.6		18	6.7		13	7	13.4
24	1	53.8		14	57.2		28	4	2.4		17	9.0
	11	49.3	12	0	52.8		13	58.0		14	3	4.7
	21	44.9		10	48.4		23	53.7		13	0.4	
25	7	40.4		20	44.1		29	9	49.3		22	56.1
	17	36.0	13	6	39.7		19	45.0		15	8	51.8
26	3	31.6		16	35.3		30	5	40.6		18	47.4
	13	27.2	14	2	30.9		15	36.3		16	4	43.1
	23	22.7		12	26.5		31	1	32.0		14	38.8
27	9	18.3		22	22.1		11	27.6		17	0	34.5
	19	13.9	15	8	17.7		21	23.3		10	30.2	
28	5	9.5		18	13.4	Apr. 1	7	18.9		20	25.9	
	15	5.0	16	4	9.0		17	14.6		18	6	21.6
29	1	0.6		14	4.6		2	3	10.3		16	17.3
	10	56.2	17	0	0.2		13	5.9		19	2	12.9
	20	51.8		9	55.8		23	1.6		12	8.6	
Mar. 1	6	47.3		19	51.5		3	8	57.2		22	4.3
	16	42.9	18	5	47.1		18	52.9		20	8	0.0



458

*Mr. Marth, Ephemeris for Jupiter.*

XLIII. 8,

1884.	h	m	1884.	h	m	1884.	h	m	1884.	h	m
Apr. 20	17	55.7	May 3	23	38.2	May 17	5	21.1	May 30	11	4.4
21	3	51.4	4	9	33.9	15	16.8	21	0.1		
13	47.1		19	29.6	18	1	12.5	31	6	55.9	
23	42.8		5	5	25.3	11	8.3	16	51.6		
22	9	38.5	15	21.0	21	4.0	June 1	2	47.3		
19	34.2		6	1	16.7	19	6	59.7	12	43.1	
23	5	29.9	11	12.4	16	55.4	22	38.8			
15	25.6		21	8.1	20	2	51.2	2	8	34.5	
24	1	21.3	7	7	3.9	12	46.9	18	30.3		
11	17.0		16	59.6	22	42.6	3	4	26.0		
21	12.7		8	2	55.3	21	8	38.4	14	21.7	
25	7	8.4	12	51.0	18	34.1	4	0	17.5		
17	4.1		22	46.7	22	4	29.8	10	13.2		
26	2	59.8	9	8	42.4	14	25.5	20	8.9		
12	55.5		18	38.1	23	0	21.3	5	6	4.7	
22	51.2		10	4	33.9	10	17.0	16	0.4		
27	8	46.9	14	29.6	20	12.7	6	1	56.1		
18	42.6		11	0	25.3	24	6	8.4	11	51.9	
28	4	38.3	10	21.0	16	4.2	21	47.6			
14	34.0		20	16.7	25	1	59.9	7	7	43.3	
29	0	29.7	12	6	12.5	11	55.6	17	39.1		
10	25.4		16	8.2	21	51.4	8	3	34.8		
20	21.1		13	2	3.9	26	7	47.1	13	30.5	
30	6	16.8	11	59.6	17	42.8	23	26.3			
16	12.5		21	55.3	27	3	38.5	9	9	22.0	
May 1	2	8.2	14	7	51.0	13	34.3	19	17.7		
12	3.9		17	46.8	23	30.0	10	5	13.5		
21	59.6		15	3	42.5	28	9	25.7	15	9.2	
2	7	55.3	13	38.2	19	21.5	11	1	4.9		
17	51.0		23	33.9	29	5	17.2	11	0.7		
3	3	46.7	16	9	29.6	15	12.9	20	56.4		
13	42.5		19	25.4	30	1	8.7	12	6	52.1	

According to observations made last April by Mr. Denning, the centre of the very much faded reddish spot followed the First Meridian of the Ephemeris about  $1^h 34^m$ . In case the slackening of the motion has continued, the spot or its place will be near the centre of the disk, when observations become again feasible, about two hours after the times in the foregoing list.

*Ephemerides of the Satellites of Saturn, 1883-84.*  
By A. Marth.

The following ephemerides of the five inner satellites are founded upon the same elements as those for the preceding apparition, which were published in the last volume of the *Monthly Notices*. The five satellites deviate so little from the plane of the ring, that it will be most suitable to treat their deviations as latitudes above this plane, the ascending node N and inclination J of which in reference to the plane of the Earth's equator being here assumed :—

1883, Aug. 27	N = 126°4833	J = 7°0119
Sept. 26	4852	0116
Oct. 26	4880	0115
Nov. 25	4921	0113
Dec. 25	4965	0110
1884, Jan. 24	4997	0105
Feb. 23	5015	0101
Mar. 24	126°5032	7°0099

the longitudes N being reckoned from the point of the true equinox.

The assumed longitudes of the satellites in their orbits (i.e. their longitudes from the ascending node added to the right ascension N of the ascending node), referring to the time when the light arrives at the distance, the logarithm of which is 0.950, are the following :—

oh Gr.	Mimas.	Enceladus.	Tethys.	Dione.	Rhea.
1883, Aug. 27	129°657	185°881	202°304	82°635	269°080
Sept. 26	69°389	147°838	163°249	68°687	139°785
Oct. 26	9°122	109°795	124°194	54°739	10°490
Nov. 25	308°856	71°752	85°138	40°791	241°194
Dec. 25	248°590	33°708	46°083	26°843	111°899
1884, Jan. 24	188°326	355°665	7°027	12°894	342°603
Feb. 23	128°063	317°622	327°972	358°946	213°308
Mar. 24	67°801	279°579	288°917	344°998	84°013

In the following tables P denotes the position-angle of the minor axis of the ring, L + 180° the planetocentric longitude of the Earth referred to the plane of the ring;  $\Lambda + 180^\circ$  that of the Sun, or  $\Lambda - L$  the difference between the two. The apparent equatorial diameter of the ball and the diameter of the outer rim of the ring depend on Bessel's determinations. The assumed proportion of the polar axis of the ball to the equatorial diameter is 0.900.